

MODEL 770 – INCREMENTAL ENCODER



Ø6.5"

FEATURES

- Slim Profile – Only 1.00" Deep**
- Fits NEMA Size 56C Thru 184C Motor Faces (4.5" AK)**
- Incorporates Opto-ASIC Technology**
- Resolutions to 4096 CPR**

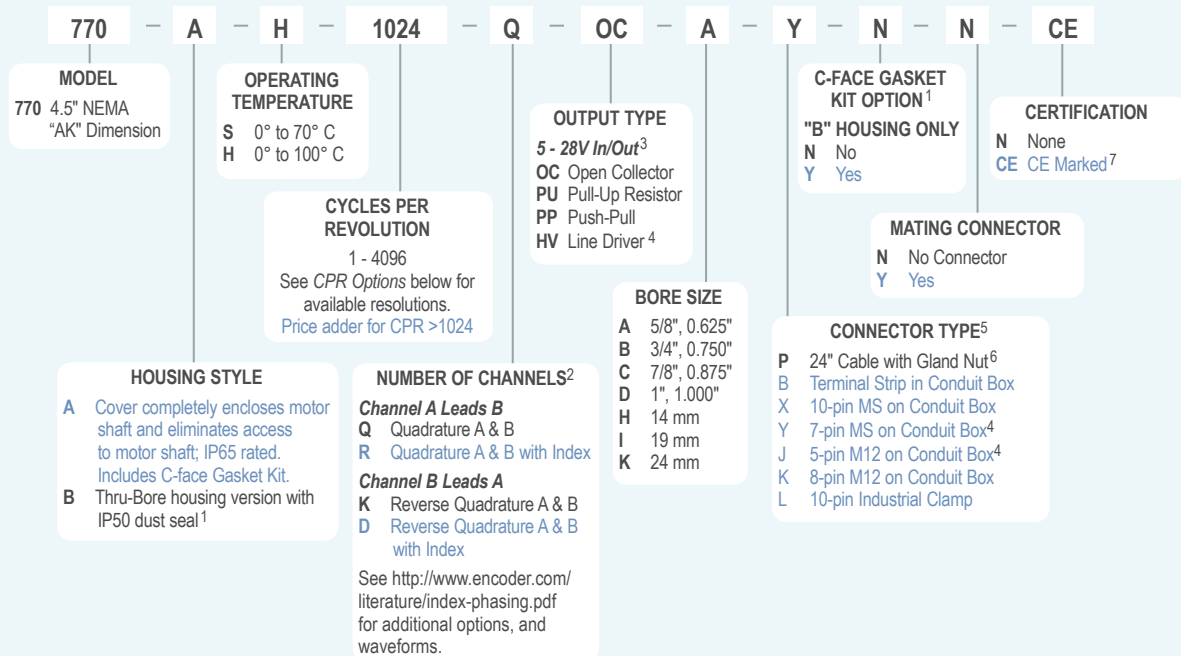
The Model 770 C-Face encoder is a rugged, high resolution encoder designed to mount directly on NEMA C-Face motors. Both sides of the encoder are C-Face mounts, allowing additional C-Face devices to be mounted to this encoder. Unlike many C-Face kit type encoders, the Model 770 contains precision bearings and an internal flex mount, virtually eliminating encoder failures and inaccuracies induced by motor shaft runout or axial endplay. The advanced Opto-ASIC design provides the advanced noise immunity necessary for many industrial applications. This encoder is ideal for applications using induction motors and flux vector control. The Model 770 provides speed and position information for drive feedback in a slim profile – only 1.00" thick. The Thru-Bore design allows fast and simple mounting of the encoder directly to the accessory shaft or to the drive shaft of the motor, using the standard motor face (NEMA sizes 56C - 184C). The tough, all-metal housing resists the vibration and hazards of an industrial environment.

COMMON APPLICATIONS

Motor Feedback, Velocity & Position Control, Conveyors, Variable Speed Drives, Mixing & Blending Motors, Assembly & Specialty Machines

MODEL 770 ORDERING GUIDE

Blue type indicates price adder options. Not all configuration combinations may be available. Contact Customer Service for details.



NOTES:

- Thru-bore version may be IP65 sealed if mounted between two C-Face devices with optional gasket kit. Select 'Yes' under C-Face Gasket Kit Option.
- Contact Customer Service for index gating options.
- 5 to 24 VDC max for high temperature option.
- Line Driver Outputs not available with 5-pin M12 connector. Available with 7-pin MS connector only without Index Z.
- For mating connectors, cables, and cordsets see [Accessories](#) at encoder.com. For Connector Pin Configuration Diagrams, see Technical Information or see [Connector Pin Configuration Diagrams](#) at encoder.com.
- For non-standard cable lengths, add a forward slash (/) plus cable length expressed in feet. Example: P/6 = 6 feet of cable.
- Please refer to Technical Bulletin [TB100: When to Choose the CE Mark](#) at encoder.com..

MODEL 770 CPR OPTIONS

0060 0100 0120 0240 0250 0256 0500
0512 1000 1024 2048 2500 4096

Contact Customer Service for other disk resolutions; not all disk resolutions available with all output types.

MODEL 770 SPECIFICATIONS

Electrical

Input Voltage.....4.75 to 28 VDC max for temperatures up to 70° C
 4.75 to 24 VDC for temperatures between 70° C and 100° C

Input Current100 mA max with no output load

Input Ripple.....100 mV peak-to-peak at 0 to 100 kHz

Output Format.....Incremental – Two square waves in quadrature with channel A leading B for clockwise shaft rotation, as viewed from the mounting face.
 See *Waveform Diagrams*.

Output TypesOpen Collector – 100 mA max per channel
 Pull-Up – Open Collector with 2.2K ohm internal resistor, 100 mA max per channel
 Push-Pull – 20 mA max per channel
 Line Driver – 20 mA max per channel (Meets RS 422 at 5 VDC supply)

Index.....Once per revolution.
 0001 to 0474 CPR: Ungated
 0475 to 4096 CPR: Gated to output A
 See *Waveform Diagrams*.

Max Frequency200 kHz

Electrical Protection ..Reverse voltage and output short circuit protected. NOTE: Sustained reverse voltage may result in permanent damage.

Noise Immunity.....Tested to BS EN61000-4-2; IEC801-3; BS EN61000-4-4; DENV 50141; DENV 50204; BS EN55022 (with European compliance option); BS EN61000-6-2; BS EN50081-2

Quadrature.....67.5° electrical or better is typical,
 Edge Separation 54° electrical minimum at temperatures > 99° C

Rise Time.....Less than 1 microsecond

Mechanical

Max Shaft Speed.....6000 RPM. Higher shaft speeds may be achievable; contact Customer Service.

Bore Tolerance +0.0015"/-0.000"

User Shaft Tolerances
 Radial Runout0.005"
 Axial Endplay.....±0.050"

Moment of Inertia...3.3 x 10⁻³ oz-in-sec² typical

HousingAll metal construction

Weight2.60 lb with gland nut
 3.00 lb with all other connector options
 Note: All weights typical

Environmental

Storage Temp-25° to 100° C

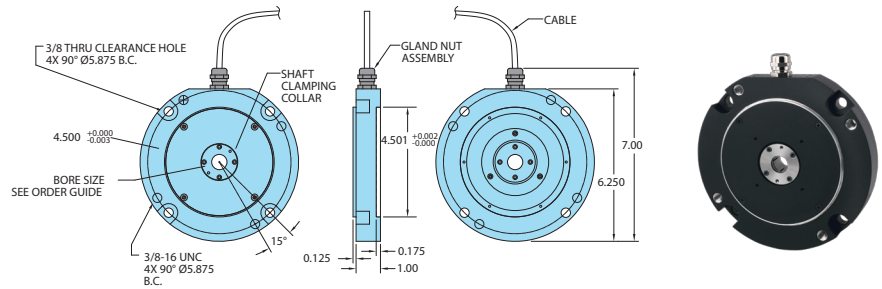
Humidity.....98% RH non-condensing

Vibration.....10 g @ 58 to 500 Hz

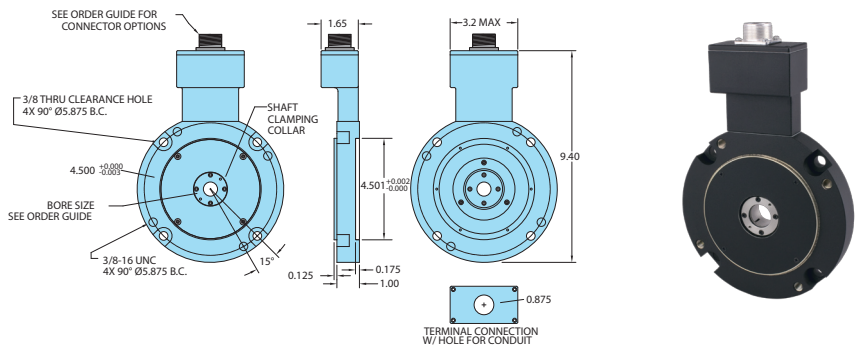
Shock.....50 g @ 11 ms duration

SealingIP65 for Option A housing style with gasket kit; IP50 for Option B housing style

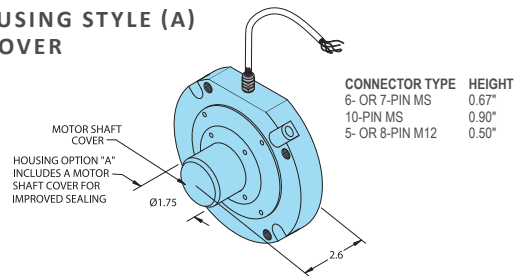
MODEL 770 WITH GLAND NUT (P)



MODEL 770 WITH CONDUIT BOX (B, X, Y, J, K)



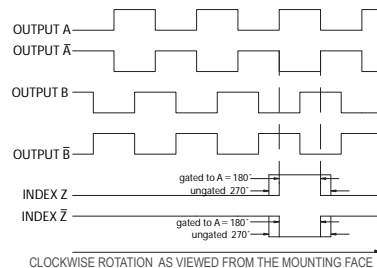
OPTIONAL HOUSING STYLE (A) PROTECTIVE COVER



All dimensions are in inches with a tolerance of ±0.005" or ±0.01" unless otherwise specified.

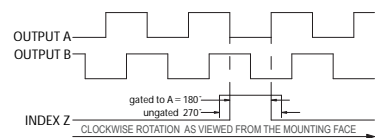
WAVEFORM DIAGRAMS

Line Driver and Push-Up



NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. WAVEFORM SHOWN WITH OPTIONAL COMPLEMENTARY SIGNALS A-bar, B-bar, Z-bar FOR HV OUTPUT ONLY.

Open Collector and Pull-Up



NOTE: ALL DEGREE REFERENCES ARE ELECTRICAL DEGREES. INDEX IS POSITIVE GOING

WIRING TABLE

For EPC-supplied mating cables, refer to wiring table provided with cable. Trim back and insulate unused wires.

Function	Gland Cable ¹ Wire Color	5-pin M12 ⁺⁺ PU, PP, OC	8-pin M12 ⁺⁺	10-pin MS	7-pin MS HV	7-pin MS PU, PP, OC	Term Block	10-pin Indust. Clamp
Com	Black	3	7	F	F	F	2	1
+VDC	Red	1	2	D	D	D	1	6
A	White	4	1	A	A	A	3	3
A'	Brown	--	3	H	C	--	4	8
B	Blue	2	4	B	B	B	5	2
B'	Violet	--	5	I	E	--	6	7
Z	Orange	5	6	C	--	C	7	4
Z'	Yellow	--	8	J	--	--	8	9
Case	--	--	--	G**	G**	G**	--	--
Shield	Bare*	--	--	--	--	--	9*	10*

*CE Option: Cable shield (bare wire) is connected to internal Case.
 **CE Option: Pin G is connected to Case. Non-CE Option: Pin G has No Connection.
 *CE Option: Pins 9 and 10 are connected to Case. Non CE Option: Pins 9 and 10 have No Connection.
 **CE Option: Use cable cordset with shield connected to M12 connector coupling nut.
¹Standard cable is 24 AWG conductors with foil and braid shield.